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Managing the environment in the next millennium

by E. Allan Dalpiaz,
Director of Environmental Management

One of the most common and challenging things I am asked is what I foresee as environmental requirements in the future. That is what I would like to focus on in this article. During the last two decades we have seen significant changes in environmental requirements with an exponential growth in environmental regulations. There is no one at Hill AFB who is not impacted in some way by these requirements. Their effect may be as simple as the standards that protect your drinking water to as complex as managing a hazardous waste site.

As we look to the next millennium, here are a few of my thoughts about the future of environmental protection.

■ Completing cleanups

During the first six years of the next century we will have all corrective actions in place at our past disposal sites. Although it will take many years to finish the clean up, we will transition out of the environmental restoration business.

■ More personal responsibility

More of our environmental requirements will mandate compliance monitoring by the operator who must certify that compliance was maintained. If standards were not maintained, we must report the violation.

■ Tighter standards

Environmental standards will continue to tighten as pollution-control technology advances and chemical detection limits become lower and lower. Many standards, currently measured in parts per billion, are on the fringe of being measured in parts per trillion.

■ Pollution Prevention

There will be a continued focus on Pollution Prevention. We must constantly strive to make our processes less hazardous and utilize more environmentally friendly materials. This is especially critical in the acquisition and development of new weapon systems.



Allan Dalpiaz

■ Regulations part of doing business

Environmental requirements will continue to become more integrated into our industrial processes. Management of hazardous materials, hazardous waste, air quality, and water quality will eventually become a part of the process rather than an additional duty.

■ Global focus

Environmental issues will become more global issues versus national issues. More focus will be placed on assisting emerging and developing countries.

Hill AFB has always been a leader in environmental protection and is committed to making even greater strides in the future. We look forward to the challenges and opportunities that the future will bring. 🌍

Mr. Dalpiaz' biography

Mr. Dalpiaz is the Director of Environmental Management for the Ogden Air Logistics Center at Hill AFB, Utah. He is responsible for all environmental programs at Hill, the Utah Test and Training Range, Little Mountain Test Annex and the Wendover Auxiliary Air Field. Mr. Dalpiaz assumed his present duties in July 1997.

A native of Ogden, Mr. Dalpiaz attended Utah State University and graduated in 1977 with a bachelors degree in Civil and Environmental Engineering. Following graduation, he was commissioned as a Second Lieutenant in the Air Force. He was stationed at Loring AFB, Maine. Four years later, he came to Hill AFB. For more than 18 years Mr. Dalpiaz has served at Hill AFB in various environmental capacities.

Mr. Dalpiaz holds advanced degrees in Business Administration and Environmental Engineering. He has also received numerous awards for his outstanding work in environmental protection.

That's a lot of stuff!

In 1997, Hill recycled 7,216 tons of material, or 53 percent of the base's solid waste.

Who needs a landfill?

Waste materials that were not recycled were converted to energy at the Davis County Burn Plant. Less than one percent of Hill's waste stream ended up in the landfill.

You try it

To truly appreciate the success of Hill's program, try fitting a week's worth of your family's garbage into a coffee can. What doesn't fit must be recycled or reused. Now are you impressed?

Recycled ROC

The Recycling Operations Center (ROC) is a prime example of reuse. The building, which was scheduled for demolition, was renovated at a cost of about \$200,000. To build a new ROC would have cost more than \$1 million.

Cash for cans

The ROC will pay cash for aluminum cans. Simply bring your cans to the center during operating hours (M-F, 8 a.m. to 4 p.m.) to collect your money.

Want to see the Wizard?

If you would like the Wizard of Waste to visit your school or group, contact Alyric Ray at 775-9007.

Hill takes home DOD recycling award

Hill AFB has been awarded the Secretary of Defense's Environmental Security Award for Recycling. Environmental Management Director Allan Dalias accepted the award May 25, at Ceremonies held in Washington, D.C.

The award recognizes not only the effect of Hill's recycling program on the amount of waste sent to landfills or other disposal facilities, but also the innovative ideas and initiatives that have made Hill's recycling program the standard by which all others are judged.

From humble beginnings—collecting cardboard with one truck and three employees—the recycling program now boasts 15 employees operating 10 trucks out of a dedicated Recycling Operations Center. Hill recycles everything from paper to shot-up targets from the Utah Test and Training Range. And yes, Hill still recycles cardboard.

By selling most of what it recycles, the program earns about \$250,000 per year, which more than pays for the program's operating expenses. The excess funds are returned to the base and used to build recreational facilities for on-base residents and workers.

But to remain self-sufficient, Hill's recycling program must be able to sell what it collects. Selling things like aluminum and certain plastics is easy. These materials are in high demand by recyclers, who can easily convert the waste into new products or raw materials.

Other products, such as paper and plastics can be more difficult to sell. This is due to a lack of demand for the products by recyclers and manufacturers.

To promote the use of recycled materials, and thereby increasing demand for the products, Hill representatives, including the locally famous Wizard of Waste, frequently appear at local schools and social events. They give recycling demonstrations and workshops teaching people how to recycle at home. They also encourage people to purchase products made from recycled materials.

Hill was also recognized for the following recycling initiatives and successes:

- Hill collects and composts grass clippings and garden waste, which are collected from the base



The Recycling Operations Center (ROC) (above) is the hub of the base's recycling effort. David Platt (left) loads shop rags into a laundering machine. Efforts to recycle shop rags have saved taxpayers hundreds of thousands of dollars in acquisition costs and disposal fees.

housing area. The compost is reused as fertilizer for lawns and gardens on base. This resulted in a savings of more than \$100,000 in landfill disposal fees.

- Almost all the rags used in the industrial shops are washed and reused instead of being disposed of as hazardous waste. This represents an annual cost savings of \$200,000 in reduced disposal fees.
- Closed-loop recycling systems have been implemented at Hill for recapturing and reusing fluids, such as solvents, coolants, refrigerants and cleaners.
- By using alternative materials and procedures, Hill has reduced or eliminated the use of hazardous materials in many of its industrial processes.
- Hill places priority on purchasing products made from recycled materials and encourages its contractors to do the same. For example, almost all the paper purchased by the base must contain at least 20 percent post-consumer recycled material. More than half of the tires purchased for base vehicles are retreads.🌍

CleanUpdate

Cleanup news from the communities surrounding Hill AFB.

North Area Riverdale

OU-6

The recent collapse of the Davis-Weber canal on the hillside above Riverdale did not occur in the area of groundwater contamination from OU-6. Fortunately, no contaminated water

from the base was in the failure zone.

The newly constructed on-base groundwater extraction and treatment system at OU-6 is now operational. Currently, the system is discharging all of the treated water to a drain field located south of the treatment building.

West Area Sunset, Clinton

OU-5
OU-9

The Air Force has reopened and widened the OU-5 Remedial Investigation. Recent field work includes the installation of 36 new monitoring wells and 16 Cone Penetrometer Test points

in Sunset and Clinton. Additionally, groundwater samples have been collected at 167 new and existing sampling points. Preliminary data indicates the area of contamination is more extensive than expected. A second phase of field work, which will include more monitoring wells and test points, begins this Fall to help the Air Force better define the contaminated area.

A more detailed report of what the new investigations have found will be published in the next issue of EnviroNews.

On-base Area Hill AFB

OU-3
OU-7
OU-9

It's about time to close the books on one site at OU-3. Confirmation soil samples taken at two different locations beneath Bldg. 514 were not able to find any detectable amounts of 1,1-

dichloroethene, the primary contaminant of concern at the site. The Air Force is set to conduct confirmatory soil sampling at the site of a former oil-water separator at the Refueling Vehicle Maintenance Facility next to Bldg. 514, which is now part of OU-9. The results of this sampling will be evaluated by December 1999. If the oil-water separator samples show no contamination, both sites will be officially closed.

East Area South Weber

OU-1
OU-2
OU-4

At OU-1, work continues on the Performance Plan for monitoring natural attenuation off base. The Performance Plan and design of the dewatering trench continues and should be com-

pleted by the end of this summer.

At OU-2, the north interceptor trench extension and Source Recovery System (SRS) continue to operate.

Several treatability studies are scheduled for the next few months. Geologists and engineers will perform another partitioning tracer test, similar to the test done in 1998. This test is used to determine how much undissolved solvent is in the ground. This test will be followed by a full-scale surfactant flush study. This study will determine how efficiently surfactants remove the undissolved solvent from the soil. These tests will provide scientists and engineers important information, which will help them improve cleanup efforts at the site.

Other activities taking place in the next few months include a study by Armstrong Laboratories, which will have representatives at OU-2 to research how solvents like trichloroethene (TCE) move underground. In addition, the EPA's Office of Research and Development will conduct a test to see if adding propane to the subsurface in the source area enhances the natural breakdown of TCE.

Operation and Maintenance of the horizontal drain groundwater collection and air stripper treatment system, located in South Weber and the Craigdale groundwater treatment system, located in Riverdale, will now be performed by contractors working under the Remedial Action and Construction (RAC) Contract. The RAC is a new contracting mechanism that will allow the Air Force to operate and maintain its treatment systems at a lower cost but with the same high-quality results.

Results from these two treatment systems have been very encouraging. The OU-4 treatment system continues to operate without problems. During the second quarter of 1999, the OU-4 system treated more than 1 million gallons of groundwater, removing 4.0 pounds of TCE. Meanwhile, in the second quarter of 1999, the Craigdale System at OU-6 treated more than 2.8 million gallons of groundwater and removed 1.1 pounds of TCE.

If you have any questions, or would like more information regarding the cleanup work at Hill AFB, please contact one of the people listed here.

Hill AFB Environmental Management Directorate Remedial Project Manager:
Shane Hirschi
(801) 775-3646

Environmental Public Affairs:
Charles Freeman
(801) 775-6951

Utah Department of Environmental Quality Remedial Project Manager:
Duane Mortensen
(801) 536-4172

Community Involvement Coordinator for UDEQ:
Kathy Grundhauser
(801) 536-4486

U.S. Environmental Protection Agency, Region 8 Remedial Project Manager:
Sandra Bourgeois
(800) 227-8917, ext. 6666

Community Involvement Coordinator for EPA:
Ellie Crandall
(800) 227-8917, ext. 6621

Hill RAB member initiates tour

Sunset's Kids Club tours base facilities

Stories and photos by Barbara Fisher

Hill AFB Environmental Management Directorate

SrA. Nick and SrA. Jennifer Gorham, 75th Security Forces Squadron, spent their day off July 15, with 150 children, ages 6-12, and one dog named Marco.

The Gorhams, who are married and are both military working dog handlers, often spend their working days with Marco, a Dutch Shepherd trained as a drug detector. The couple volunteered, however, to spend a day putting Marco through his paces so the Sunset City Kids Club could see what a military working dog does.

Jennifer, Marco's handler, led Marco through a series of commands while Nick played the role of bad guy, who even attempted at one point to escape capture. Marco knew what to do, much to the delight of the Kids Club members.

This was the first visit to Hill AFB for the Kids Club. The club, which has been in existence for three years, has toured the Hill Aerospace Museum during previous field trips. Most of the children in the Kids Club are from Sunset, and the group meets three days a week in the summer for a few hours "just to have fun," said Josh Olmstead, Sunset City's recreation director.

Mickey Hennessee, the Sunset City representative to the Hill AFB Restoration Advisory Board arranged for the tour. The advisory board consists of members of the community and other interested parties who provide input to the base on environmental cleanup activities.

The Environmental Management Directorate sponsored the Kids Club tour. Anne Connelly arranged the visit, and she and Mike Petersen served as escorts for the group. Both Connelly and Petersen work for EM.



Meeting the Wizard

The Wizard of Waste (a.k.a. Alyric Ray) discusses the benefits of recycling and reuse to children from Sunset's Kids Club. Hill AFB's Recycling Operations Center was among several stops the children made during their recent tour of the base.

In addition to seeing the Gorhams and Marco, the Kids Club visited the 419th Fighter Wing where they were allowed to climb on and in the F-16 Fighting Falcon and get answers to as many questions as they could think of about the aircraft and the Air Force.

They also toured Hill's recycling center and met with the Wizard of Waste, alias Alyric Ray, with the 75th Support Group's Services Division.

Sunset resident Carla Perry, one of the volunteer moms on the visit, said the trip to Hill was "very interesting." Perry said the children were "enthusiastic about seeing the actual airplanes" they see and hear above their homes.

Hooper resident, 8-year-old Colten Watt, said the Hill visit was "great." Colten said he had not been to Hill before and the best part of the visit for him was when he "climbed inside the engine of the F-16."

"We loved it," Olmstead said of the visit. "It was one of the best field trips we have been on." 🌍



Sienna Smith, 8, of the Sunset Kids Club, takes a break inside a jet engine during a tour of the 419th Fighter Wing's facilities at Hill.

Hill AFB RAB Member List

Allan Dalpias
Air Force Co-chair

Jerry Everett
Community Co-chair
Layton Cmnty. Rep.

Dave Hultgren
Clearfield City Rep.

Ken Kennedy
Clinton Cmnty. Rep.

John Keck
Clinton City Rep.

Peter Matson
Layton City Rep.

Lynn Moulding
Riverdale City Rep.

Joel Workman
South Weber City Rep.

Mark Perkins
South Weber Cmnty. Rep.

Mickey Hennessee
Sunset City Rep.

Mel Wood
Sunset Cmty. Rep.

Brent Poll
South Weber Landfill Coalition Rep.

Al Herring
Sierra Club Rep.

Scott Paxman
Weber Basin Water Conservancy District

Louis Cooper
Davis County Health Dept.

Brian Cowan
Weber-Morgan County Health Dept.

Rex Averett
Central Weber Sewer District Rep.

Cliff Specht
North Davis Sewer District Rep.

Floyd Baham
Davis-Weber Canal Co. Rep.

Sandra Bourgeois
EPA Region 8 Rep.

Duane Mortensen
UDEQ Rep.

Risk Assessments

At the conclusion of the Remedial Investigation for each Operable Unit, a Baseline Risk Assessment report is published. This report shows if there is a risk now and who could be at risk in the future if no cleanup actions were to take place. Risk assessments look at a variety of factors, including how contamination could reach someone, in determining risk at a particular site. The conclusions of the Risk Assessment are heavily considered when choosing a cleanup alternative for a site.

Look what I found?

If you think you might know of a potential exposure point, such as a seep or spring, please contact Mark Loucks at 777-6299.

Clean spring water?

Contrary to what many people think, spring water is not necessarily clean and pure. In fact many of the springs and seeps in the area are not fit to drink because of natural contaminants in the water. Due to the number of wild and domesticated animals that live in the area, dangerous microorganisms, like giardia, can be found in spring water.

Exposure pathways: The facts about chemical exposure

Chemical exposure. It's one of the most common concerns among people living near known waste disposal sites, like Hill AFB.

While people are aware that chemicals in the environment can pose a potential health risk, most people don't understand how exposures actually occur. This lack of understanding can sometimes lead to misconceptions, which can also lead to fear.

The purpose of this article is to clear up many of the common misconceptions about chemical exposure.

First of all, it's important to understand that to suffer the effects of something, you must first be exposed to it. Anyone who has gotten a sunburn has experienced this. If you stay out in the sun too long, your skin will get sunburned. But if you stay out of the sun, the sun cannot reach your skin and you won't get sunburned.

The same principle applies in chemical exposures. For example, if you were somehow exposed to a chemical, you could be affected by it. Like sunburn, the effects of the chemical exposure would vary depending on the person, the amount of chemical involved and the duration of the exposure. But also, like sunburn, it would be impossible to suffer the effects of a chemical if there was no exposure.

So how can one be exposed to a chemical? It's not as simple as it sounds. In fact, exposure requires what scientists call a "completed exposure pathway."

A completed exposure pathway requires three elements: a source, a pathway, and a receptor. All three must exist for an exposure to occur. If just one element is missing, the pathway is incomplete and there is no exposure.

In the environment, a completed exposure pathway may include the following: a source (chemicals), a pathway (groundwater or air), and a receptor (a person coming into contact with the contaminated water or air). All three elements must be in place for the exposure pathway to be complete.

Fortunately, finding a completed exposure pathway off base is rare. In most cases, you have to really be looking for one to find it. Usually, only one or two of the three elements are in place. Since very few completed exposure pathways exist, the chance that someone could be accidentally or unknowingly exposed to chemical contamination is minimal.

Routes of exposure

Chemicals can enter the body in the ways explained below. This is how exposure occurs. You must be exposed to a chemical in one of these ways to be affected by it.



Inhalation

By breathing chemical vapors, chemicals are absorbed into the bloodstream through the lungs. Vapors can come from bathing or showering with contaminated water or by breathing air near an exposed area of contaminated water or soil.



Ingestion

By drinking contaminated water or swallowing food or other materials containing chemicals, the chemicals are absorbed into the body through the stomach and intestinal tract.



Skin and eye contact

Some chemicals can burn or irritate the skin or eyes if direct contact occurs.



Skin absorption

Some chemicals can enter the body through the skin. The chemical is absorbed into the bloodstream through blood vessels.

A completed exposure pathway requires three elements: a source, a pathway, and a receptor. If just one element is missing, the pathway is incomplete and there is no exposure.

While that's good news for the people living around the base, the Air Force is not content to ignore the potential for exposures. One of the Air Force's primary goals is to ensure that no partial exposure pathways ever become complete.

People can help themselves avoid exposure by simply being aware of the places that chemicals could potentially reach them.

■ Springs and seeps

Springs and seeps are common along the hillsides and slopes off base. Some (but not all) of these springs and seeps are contaminated with chemicals from Hill AFB. The Air Force has identified most of the springs and seeps and has taken appropriate

See Exposure Pathways, cont. on page 6

Official Business

Exposure Pathways

Continued from page 5

precautions to prevent people from being exposed; for example, fencing off springs and seeps and collecting and treating spring water. However, despite the precautions, it's still possible for people to be exposed to this water and complete an exposure pathway. We encourage parents to remind children to stay away from these areas. While the low concentrations of chemicals in the water is not likely to harm anyone, prudence requires caution.

■ Shallow wells

A number of people who live near the base have irrigation wells on their property. If these wells are pumping contaminated water, it presents the possibility of completing an exposure pathway. In general terms, as long as the contaminated water stays underground, it is very difficult to complete an exposure pathway, because no one is coming into contact with the water. But once it is brought to the surface, the chance of completing an exposure pathway increases dramatically.

Those with irrigation wells should have the Air Force test the well to ensure the water is safe. If you would like to have someone come out and test your well, please contact Mark Loucks at 777-6299.

■ Chemical vapors

In a few areas off base, contaminated water has seeped into the basements of some homes. Once inside the home, chemical vapors from the contaminants in the water could get into the air in the basement and potentially complete an exposure pathway. The Air Force has conducted several indoor air quality studies in homes with this scenario and found no dangerous levels of contaminants in the air. However, if you suspect water seeping into your base-

Am I being exposed?

The likelihood you are being exposed to chemicals from Hill AFB is small. However, if you want to find out for yourself, take a minute to answer the following questions.

Am I drinking the chemical?

If you get your water from the city in which you live, you are not drinking contaminated water. However, if you live near the base and drink water from a shallow well or spring, it's possible you might be drinking contaminated water.

Am I eating the chemical?

According to scientific studies, chemicals like those found at Hill do not accumulate significantly in fruits, vegetables or meat. However, if you have eaten dirt from a waste site on base or near a contaminated spring, you may have eaten some of the chemical.

Am I breathing the chemical?


Air quality studies conducted by Hill AFB have not shown dangerous levels of chemical vapors in people's homes or basements. Again, if you use city water for bathing and showering, you are not being exposed to chemical vapors in your home. Any outdoor vapors dissipate rapidly and do not pose a hazard.

Am I touching the chemical or is it getting on my skin or into my eyes?

Exposures of this type require direct contact with the chemical. If you have no contact with contaminated springs or with contaminated water from a shallow well, you are not being exposed in this manner. Any contaminated soil is located either on base or immediately near a contaminated spring.

If you answered "yes" to any of these questions, or if you are unsure of your answers, please contact Kevin Bourne (775-6892) or Steve Hicken (775-3648) at Hill AFB. They can talk to you in more detail about your concerns and answer your questions and arrange to have your water sampled.

ment may be contaminated, contact Mark Loucks at Hill AFB.

Exposure pathways can be confusing. But by remembering these simple concepts, understanding exposure pathways can become less cryptic. Remember that there must be a completed exposure pathway to have an exposure, and if there is no exposure, there is no risk. 

EnviroNews is a quarterly publication of the Environmental Management Directorate, Hill AFB, Utah, designed to inform the public of hazardous waste cleanup and other environmental activities at Hill AFB.

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